



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/532,693

01/03/2006

Hiroaki Koyama

CSP-115-A

8753

21828 7590 01/30/2007
CARRIER BLACKMAN AND ASSOCIATES
24101 NOVI ROAD
SUITE 100
NOVI, MI 48375

EXAMINER

LIN, KUANG Y

ART UNIT

PAPER NUMBER

1725

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
--	-----------	---------------

3 MONTHS

01/30/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/532,693

Applicant(s)

KOYAMA ET AL.

Examiner

Kuang Y. Lin

Art Unit

1725

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 December 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1725

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 1-4, 6-8, 10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-060,845.

JP '845 shows a method for prolonging service life of the casting die by maintaining the compressive residual stress of a die cavity surface for more than 1000 MPa (see [0003], [0028]) through a shot-peening and a nitriding process. Thus, JP '845 substantially shows the invention as claimed except it does not disclose the surface roughness. However, it would have been obvious to those of ordinary skill in the die casting art that the die cavity surface shall be maintained as smooth as possible such that to increase the heat transfer rate between the cast metal and the die surface and also to obtain a better surface

quality for the cast article. It would have been obvious to obtain the optimal roughness through routine experimentation. With respect to claim 3, it is conventional to use chrome molybdenum steel for making casting die as acknowledged by applicant as set forth in [007] of the instant specification.

4. Claims 5, 9, 11, 12, 15 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-060845 as applied to claim 1 above, and further in view of JP 10-204,610.

JP '610 shows to prevent seizure in a die by forming a dense coating layer having a lubricating effect and a thermal insulating effect and to improve the service life of the die by forming a nitrided layer containing iron sulfide on the die cavity surface. It would have been obvious to further include the iron sulfide of JP '610 in the nitrided layer of JP '845 in view of the advantage. With respect to claims 18 and 19, it would have been obvious to obtain the optimal particle sizes for peening and the temperature of the process chamber through routine experimentation.

5. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-060,845 as applied to claim 1 above, and further in view of US 6,546,968 to Nakagawa et al.

Nakagawa et al. discloses that the atmosphere during nitriding treatment, instead of nitrogen gas, can be a nitrogen compound gas such as ammonia gas or the like. When the ammonia gas is used, the rate of nitriding reaction can be increased. At this time, by using together such gases as hydrogen, nitrogen,

argon or the like, the rate of nitriding reaction can be controlled. Thus, it would have been obvious to further provide the hydrogen gas of Nakagawa et al. in the nitriding process of JP '845 such that to better control the nitriding reaction.

6. Claims 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over JP 2002-060845 in view of JP 10-204,610 as applied to claim 5 above, and further in view of US 6,546,968 to Nakagawa et al.

The treatment of Nakagawa et al. is the same as supra. It would have been obvious to further provide the hydrogen gas of Nakagawa et al. in the nitriding process of JP '845 such that to better control the nitriding reaction.

7. Applicant's arguments filed December 27, 2006 have been fully considered but they are not persuasive.

a. In page 6, last paragraph of the amendment applicant stated that JP '845 merely discloses a process of nitriding treatment. However, in [0015] of JP '845 it discloses that it is desirable to perform shot peening at both prior to and after the nitriding treatment. Further, in paragraph [0020] of JP '845 it discloses that it is desirable to perform shot-peening processing aiming at removal of the crack which removed the oxide on the front face of metal mold before nitriding treatment and on the occasion of re-nitriding treatment. Thus, JP '845 does disclose both shot-peening treatment and nitriding treatment.

b. In page 7, 2nd and 3rd paragraphs of the amendment applicant stated that none of the prior art reference shows the surface roughness range as claimed. However, it would have been obvious to those of ordinary skill in the die casting

art that the die cavity surface shall be maintained as smooth as possible such that to increase the heat transfer rate between the cast metal and the die surface and also to obtain a better surface quality for the cast article. It would have been obvious to obtain the optimal roughness through routine experimentation.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

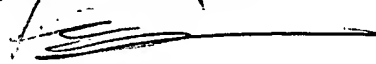
A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kuang Y. Lin whose telephone number is 571-272-1179. The examiner can normally be reached on Monday-Friday, 10:00-6:30,.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1725

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Kuang Y. Lin
Primary Examiner
Art Unit 1725

1-23-07